Societies and Academies.

LONDON.

Geological Society, January 19.—Mr. R. D. Oldham, president, in the chair.—Dr. L. J. **Wills** and B. **Smith**: The Lower Palæozoic rocks of the Llangollen district, with especial reference to the tectonics. The general sequence of rocks and details of their components in various localities are given. The Lower Palæozoic rocks are, in the main, folded on approximately east-and-west axes, to which the cleavage and some of the major faults are closely parallel in direction. The folding and part of the faulting are Devonian, and appear to have set up torsional stresses affecting a greater area than that considered here. The concertina-folding in the synclinoria appears to be related to the tough anticlinal nodes of the northern Ordovician outcrops. The master-faults separate blocks of country which appear to have been displaced laterally in post-Carboniferous times. The minor faults appear to be adjustments that allow the strata to comply with torsional stresses.

PARIS.

Academy of Sciences, January 3.—M. G. Lemoine in the chair.—E. **Picard**: Certain functions connected with closed surfaces.—P. **Termier** and L. **Joleaud**: The age of transport phenomena in the region of Avignon.—L. **Fabry**: The use of geocentric latitudes for facilitating the identification of the minor planets. Two minor planets were notified in Circular 138 of the Marseilles Observatory which appeared to be new. The author has applied the method of geocentric latitudes to the photographic observations, and shows that one of these is identical with Mnemosyne (57).—R. **de Forcrand**: The melting point of heptane and the law of alternation of melting points. Hexane gave a melting point of −93·5° C., as against −95° C. found by Guttmann, and octane −57·4° C. (Guttmann −98·2° C.). It has been shown that the melting points of many series of carbon compounds show an irregular-toothed curve, such that in passing from a compound with an even number of carbon atoms to the next higher homologue with an odd number the melting point fell. The data for the C_1 to C_8 paraffin hydrocarbons appeared to give an exceptional curve, but with the substitution of −57·4° C. for the −98·2° C. of Guttmann the curve becomes normal, and would indicate −94° C. as the melting point of heptane. Pure heptane was prepared and found to have a melting point of −94·75° C.—H. **Parenty**: The reconstitution of certain invisible details of old pictures. With reference to a recent paper by A. Chéron on the use of radiography for the recognition of ancient pictures, the author recalls a paper published in 1913 in which photography was used for the same purpose, and mentions two cases in which his conclusions based on ordinary photographs have been confirmed.—P. **Vuillemin**: The aberrations of floral symmetry.—M. **Angelesco**: Certain completely integrable linear differential equations.—A. **Petot**: Shocks in the change-gears of motor-cars.—M. **Dumanois**: The determination of a criterion of general fatigue in internal-combustion motors. A discussion of a formula for the factor of safety in the construction of internal-combustion motors, with special reference to Diesel engines.—H. **Corblin**: A compressor with a membrane. The gas compressor described and illustrated has, in effect, a liquid piston, with an elastic metallic membrane separating the liquid and the gas being compressed. The compression is nearly isothermal, and air can be carried from atmospheric pressure to 100 kg. per sq. cm. at one step.—J. **Guillaume**: Observations of the sun made at the Lyons Observatory during the third quarter of 1920. Observations were made on eighty-eight days during the quarter and the results are shown in three tables, giving the number of spots, their distribution in latitude, and the distribution of the faculæ in latitude.—L. A. **Herdt** and R. B. **Owens**: The direction of ships at the entrance of ports and channels by a submerged electric cable. An account of experiments carried out in Canada in 1904, and suggestions for the development of the method.—M. **Liénard**: Scalar and vector potentials due to the motion of electric charges. A formula recently developed by Anderson (*Phil. Mag.*, August, 1920) is not in agreement with one given by the author in 1898. A mathematical investigation of the cause of the discrepancy is given.—G. **Ferrié**, R. **Jouaust**, R. **Mesny**, and A. **Perot**: Studies in radiogoniometry. Under normal conditions the direction of the electromagnetic waves in wireless telegraphy can be determined within 1°, but under certain conditions the azimuth of a transmitting post varies capriciously, and at certain times during the day no position can be found. These effects have been carefully studied, but although there is some evidence of a seasonal influence the exact cause of these deviations has not yet been elucidated.—A. **Chéron**: The radiography of pictures. In the preparation of the canvas at the present time white lead is used, whilst in early times calcium carbonate and wax were preferred. These differ markedly in transparency to the X-rays, and the materials of old and modern paints also show differences in this respect. Hence radiography may serve to distinguish between old and modern pictures, and in certain cases can bring out restorations.—E. **Rengade**: Saline double decompositions and the phase rule. It is shown by experiment that if a mixture of sodium nitrate and ammonium chloride is treated with a quantity of water insufficient for complete solution, crystals of sodium chloride are formed. This is opposed to the conclusion arrived at by M. Raveau in a recent communication.—G. **Denigès**: Remarks on a recent note by M. A. Bolland on the microchemical reactions of iodic acid. A claim for priority.—A. **Kling** and D. **Florentin**: The properties and constitution of the group $(CO.Cl_2)$. The complete substitution of hydrogen by chlorine in the group —OCH_3 gives rise to abnormal properties. From its reactions it has a modified structure and behaves as phosgene *plus* chlorine.—C. **Dufraisse**: The ethylene isomerism of the ω-bromostyrolenes. Both these stereo-isomers are liquids at the ordinary temperature, and differ in colour and smell. An account is given of their reciprocal transformations.—J. **Durand**: The action of the alkaline metals on the ether oxides. It has hitherto been supposed that ordinary ethyl ether and its homologues are without action on sodium and the other alkaline metals, but the author shows that this is not the case. Details of the reaction between sodium (or the liquid alloy of sodium and potassium) on ethyl and *iso*amyl ethers, veratrol, ethylbenzyl ether, and diphenyl ether are given. The exact mechanism has still to be worked out.—F. **Grandjean**: The existence of equidistant differentiated planes normal to the optic axis in liquid crystals.—P. **Négris**: The glacial oscillations of the Quaternary period and the corresponding movements of the lithosphere.—E. **Chaput**: Observations on the ancient alluvium of the Seine.—E. **Mesnard**: Contribution to the history of earthquakes.—P. **Lesage**: Saline plants and period of anomalies.—G. **Nicolas**: Contribution to the study of the mechanism of the fertilising action of sulphur. Sulphur increases the assimilation of carbon from the air by the action of chlorophyll.—M. **Barlot**: A new reagent for Lactarius

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and Russula. The reagent is methyl chloroantimoniale in methyl alcohol solution. The colour reactions with eighteen species of Russula are given.—A. **Pézard**: The law of "all or nothing" or of functional constancy relating to the action of the testicle.—M. **Bezssonoff**: The antiscorbutic action of raw potato, ground and intact.—J. **Nageotte**: The structure of the cornea.—R. **Dubois**: Maternal affection in the electric skate (*Torpedo mormorotae*). Just before the birth of her young a specimen of this fish gave strong electric shocks, but after the birth of seven young the fish, although vigorous, gave no more shocks, and with the young fish about it could be readily handled. When the young were removed the shocks were as strong as before. This shows that the electrical discharge is not a reflex action, but voluntary, and can be suppressed when likely to be a danger to the young.—MM. **Cluzet**, **Rochaix**, and **Kofman**: The bactericidal action of the radiation from radium tubes employed in radium therapy.—F. **d'Herelle**: The bacteriophage micro-organism, the agent of immunity in plague and barbone.—A. **Paine** and A. **Peyron**: The neoplasic transformation of striated muscular fibre with visceral metastasis in the evolution of experimental sarcoma in birds.

Books Received.

Basic Slags: Their Production and Utilisation in Agriculture. (A General Discussion held by the Faraday Society on Tuesday, March 23, 1920.) Pp. 259–335. (London: The Faraday Society.) 7*s*. 6*d*.

The Botanical Society and Exchange Club of the British Isles. Vol. v., part v. Report for 1919. (Arbroath: T. Buncle and Co.) 7*s*. 6*d*.

The Observer's Handbook for 1921. (Thirteenth year of publication.) Pp. 64. (Toronto: Royal Astronomical Society of Canada.)

State of Connecticut. Public Document No. 24. Forty-third Annual Report of the Connecticut Agricultural Experiment Station, being the Annual Report for the Year ended October 31, 1919. Pp. xvi+506+lvi plates. (New Haven, Conn.)

Department of the Interior. U.S. Geological Survey. Bulletin 682: Marble Resources of South-eastern Alaska. By E. F. Burchard. Pp. 118+xxvi plates. Bulletin 697: Gypsum Deposits of the United States. By R. W. Stone and others. Pp. 326+xxxvii plates. Bulletin 712: Mineral Resources of Alaska. Report on Progress of Investigations in 1918. By G. C. Martin and others. Pp. iii+204+xv+vi plates. (Washington: Government Printing Office.)

Inorganic Chemistry. By E. I. Lewis. Third edition. Pp. xv+443. (Cambridge: At the University Press.) 9*s*. net.

Approved Technique of the Rideal-Walker Test. By Dr. S. Rideal and Capt. J. T. A. Walker. Pp. 12. (London: H. K. Lewis and Co., Ltd.) 1*s*. net.

The Subject-Index to Periodicals, 1917–19. F: Education and Child Welfare. Pp. 87. (London: The Library Association.) 4*s*. net.

The Bases of Agricultural Practice and Economics in the United Provinces, India. By Dr. H. M. Leake. Pp. viii+277. (Cambridge: W. Heffer and Sons, Ltd.) 15*s*. net.

Wisconsin Geological and Natural History Survey. Bulletin No. 57. Scientific Series No. 12: Phytoplankton of the Inland Lakes of Wisconsin. Part i. By G. M. Smith. Pp. iii+243+51 plates. (Madison, Wis.)

The Bahama Floras. By Prof. N. L. Britton and Dr. C. F. Millspaugh. Pp. viii+695. (New York: Published by the authors.)

Introduction to Qualitative Chemical Analysis. By Th. W. Fresenius. Seventeenth edition of the original work by C. R. Fresenius. Translated by C. Ainsworth Mitchell. Pp. xx+954. (London: J. and A. Churchill.) 36*s*. net.

Department of Marine Biology of the Carnegie Institution of Washington. Vol. x.: The Echinoderm Fauna of Torres Strait: Its Composition and its Origin. By H. L. Clark. (Publication No. 214.) Pp. viii+223+38 plates. (Washington: Carnegie Institution.)

Diseases of the Ear. By Dr. P. D. Kerrison. Second edition. Pp. xxi+596+vi plates. (Philadelphia and London: J. B. Lippincott Co.) 35*s*. net.

Chemie der Hefe und der Alkoholischen Garung. By Prof. H. Euler and Prof. P. Lindner. Pp. x+350+2 Tafel. (Leipzig: Gustav Fock.)

Kieselsaure und Silicate. By H. Le Chatelier. Berechtigte Uebersetzung by Dr. H. Finkelstein. Pp. xi+458. (Leipzig: Gustav Fock.)

Piezochemie Kondensierter Systeme. By Prof. E. Cohen and Dr. W. Schut. Pp. ix+449. (Leipzig: Gustav Fock.)

Die Chemische Literatur und die Organisation der Wissenschaft. By W. Ostwald. Pp. iv+120. (Leipzig: Gustav Fock.)

A Dictionary of Applied Chemistry. By Sir Edward Thorpe. Vol. i.: A–Calcium. Revised and enlarged edition. Pp. x+752. (London: Longmans, Green and Co.) 60*s*. net.

Ancient Egypt. Part i., 1921. (London and New York: Macmillan and Co.; Boston: Egyptian Research Account.) 2*s*.

A Manual of Photographic Technique: Describing Apparatus, Materials, and the Details of Procedure. By L. J. Hibbert. Pp. x+118. (London: Sir I. Pitman and Sons, Ltd.) 2*s*. 6*d*. net.

Diary of Societies.

THURSDAY, FEBRUARY 3.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. W. A. Herdman: Oceanography (Great Exploring Expeditions).

ROYAL SOCIETY, at 4.30.—Dr. G. B. Jeffery: The Field of an Electron on Einstein's Theory of Gravitation.—Dr. M. N. Saha: A Physical Theory of Stellar Spectra.—W. F. Darke, J. W. McBain, and C. S. Salmon: The Ultra-microscopic Structure of Soaps.—Dr. J. Mercer: Linear Transformations and Functions of Positive Type.

CHINA SOCIETY (at School of Oriental Studies), at 5.—E. H. C. Walsh: Central Tibet and Lhasa.

LINNEAN SOCIETY, at 5.—Miller Christy: Wistman's Wood, Dartmoor; Specimens of Slides.—Dr. Agnes Arber: Leaf-tips of Monocotyledons.—T. A. Dymes: Seedlings of *Ruscus aculeatus*, with Remarks on their Germination and Growth.

ROYAL AERONAUTICAL SOCIETY (at Royal Society of Arts), at 5.30.—Major G. Dobson: The Use of Meteorology to Aviation and *Vice-versa*.—Wing-Comdr. H. W. S. Outram: Ground Engineering.

ROYAL SOCIETY OF MEDICINE, at 5.30.—Prof. F. Hobday: The Diseases of Animals which are Contagious to Man.

LONDON DERMATOLOGICAL SOCIETY, at 6.—Dr. W. Griffith: Parasitic Diseases of the Skin (Chesterfield Lecture).

CHEMICAL SOCIETY, at 8.—Informal Meeting.

ROYAL SOCIETY OF MEDICINE (Obstetrics and Gynæcology Section), at 8.—F. C. Pybus: An Unusual Type of a Tuberculous Peritubal Cyst.—Dr. T. W. Eden and F. L. Provis: X-ray Treatment of Uterine Fibroids and Chronic Metritis.

FRIDAY, FEBRUARY 4.

ROYAL SOCIETY OF MEDICINE (Laryngology Section), at 4.

ROYAL ASTRONOMICAL SOCIETY (Geophysical Discussion), at 5.—On Gravity at Sea: Opened by Prof. G. W. Duffield, and continued by Sir S. G. Burrard, Dr. H. Jeffreys, Dr. J. W. Evans, and Dr. A. M. Davies. Chairman: Sir Arthur Schuster.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Prof. C. W. G. Bryan: The Early and Late Effects of Injuries of the Diaphragm, with Social Reference to Wounds jointly involving Thoracic and Abdominal Viscera.

INSTITUTION OF MECHANICAL ENGINEERS (Informal Meeting), at 7.—F. R. Wade and Others: Our Part in the Industrial Crisis of To-day.

JUNIOR INSTITUTION OF ENGINEERS, at 8.—W. H. Ballantyne: Surface Tension and Some of its Industrial Applications.

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